

The Manitoba Hydro-Electric Board

36th ANNUAL REPORT FOR THE YEAR ENDED MARCH 31, 1987



87-05393/



COVER:

Transportation, business and industry in Manitoba depend upon reliable, abundant and inexpensive supplies of electrical energy provided by Manitoba Hydro. Low-cost hydro power as an energy source also helps to attract new industry to the province. The result is a stable, diversified economy in Manitoba.

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Winnipeg, Manitoba
Canada

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Manitoba Hydro
P.O. Box 815
Winnipeg, Manitoba
Canada
R3C 2P4

Telephone:

(204) 474-3311

HIGHLIGHTS

Financial

Gross Revenues:
\$569.7 million

Total Expenses:
\$556.3 million

Net Income:
\$13.4 million

Extraprovincial Revenues:
\$113.5 million

**Energy Sales within
Manitoba:**
\$449.3 million

Finance Expense:
\$242.6 million

Reserves:
\$137.3 million

Additions to Fixed Assets:
\$237.8 million

Operating

(Integrated System)

**Total Generation
(including isolated
stations):**
24.1 billion
kilowatt hours

**Manitoba Firm Energy
Supplied:**
15.5 billion kilowatt hours

Manitoba Peak Load:
3 011 megawatts

(Manitoba Hydro)

**Total Hydraulic
Generation:**
22.9 billion kilowatt hours

**Power Sales to Manitoba
Customers:**
12.9 billion kilowatt hours

Export Sales:
7.8 billion kilowatt hours

Number of Customers:
354 814

Peak Number of Employees:
4 142

Other

second year of construction
sees significant progress at
Limestone site...Manitoba
content approaches 90 per
cent.

installation completed on
computerized Customer
Service System

new records set for total
generation, hydraulic gen-
eration and peak load

safety record among top
three of major Canadian
utilities

Little Grand Rapids and
Pauingassi connected to
Manitoba's central electri-
cal supply

World's first commercially
operable HVDC paralleling
system implemented

POWER SALES TO MANITOBA
CUSTOMERS: \$449.3 MILLION

The Manitoba Hydro-Electric Board 36th Annual Report





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Power Sources and High Voltage
Transmission (map) . . . inside back cover

An exciting challenge for the men and women building it, the Limestone Generating Station demands a highly co-ordinated approach to achieve the efficient use of workers and materials across a large construction site.



*Letter of
Transmittal*

1987 07 03

The Honourable W. Parasiuk
Minister responsible for the
administration of
The Manitoba Hydro Act
Province of Manitoba
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Sir:

I have the honour of presenting
the Thirty-sixth Annual Report
of The Manitoba Hydro-Electric
Board together with financial
statements for the fiscal year
ended March 31, 1987.

Respectfully submitted,

M. Eliesen

Marc Eliesen
Chairperson
Board of Directors
The Manitoba Hydro-
Electric Board



Henday Converter Station changes electricity from alternating current to direct current for the long trip south.

Introduction

Manitoba Hydro is a provincial government-owned Crown Corporation, generating and distributing electricity to nearly 355 000 customers throughout the province. It operates and administers generating, transmission and other facilities built at a recorded cost in excess of \$3 billion with an estimated replacement cost of approximately \$7.6 billion.

On April 1, 1961, the Manitoba Power Commission and The Manitoba Hydro-Electric Board were amalgamated to form Manitoba Hydro. The Corporation is charged with the responsibility of providing electrical energy to Manitobans in an economic and efficient manner. The utility distributes electricity everywhere in the province except for the central portion of the city of Winnipeg which is served by city-owned Winnipeg Hydro. Manitoba Hydro and Winnipeg Hydro operate as an integrated electrical generation and transmission system.

The business of the Corporation is administered by a Board of 11 members appointed by the provincial Cabinet. Through its Chairperson, the Board reports on the activities of Manitoba Hydro to the Minister responsible for administration of the Manitoba Hydro Act who, in turn, reports to the Manitoba Legislative Assembly. In this manner, Manitoba Hydro is responsible to the people through their elected representatives.

Generating stations on the Nelson River, such as Long Spruce, annually supply more than 70 percent of the electricity generated by Manitoba Hydro.



The HVDC transmission system delivers energy to southern Manitoba.

Chairperson's Message

"Our low cost electricity supply maintains and attracts new investment to the province...."



During the past year, Manitoba Hydro has successfully maintained its enviable reputation as a provider of low-cost, reliable electrical service to the people of Manitoba.

It is a reputation that has been earned through a proud record of past service over a number of years. The utility remains dedicated to the concept that service to its customers is the number one priority.

Manitoba Hydro's contribution to the growth of Manitoba's economy has been an important one. Our low cost electricity supply maintains and attracts new investment to the province, helping to encourage a stable, diversified economy in Manitoba.

This role took on greater prominence during the year as the new 1 280 megawatt Limestone Generating Station began to take shape, following the first full season of construction. The economic stimulative impact of the project has proved to be extremely significant in the

context of increased investment, economic growth and employment.

To date, with most major contracts on the Limestone project awarded, Manitoba Hydro's purchasing policies have resulted in nearly 90 per cent Manitoba content. Business and labour are benefitting directly and indirectly through the economic spinoff resulting from the extensive amount of Manitoba content.

The impact of Manitoba Hydro's development activities has been recognized by major Canadian financial institutions and economic forecasters, which continue to depict Manitoba as a provincial economic growth leader.

Manitoba's abundant low priced hydro-electric resources are offering a sound basis on which to attract new industries to the province, particularly those which rely significantly on electricity in their manufacturing and processing activities. The advantages of hydro-electricity as an energy source for industry and business are clear. Electricity is the most flexible, versatile and controllable of all energy resources. When low cost hydro power is combined with Manitoba's extensive mineral and human resources, it makes the province an ideal location for energy intensive and related industries.

The Hydro Board has encouraged and supported

employment measures and policies resulting in unprecedented levels of participation by northern Manitobans, particularly by those of native ancestry, in the construction of Limestone in a full range of job categories. As the project proceeds, training programs and on-the-job experience will enhance these levels while creating a qualified northern labour pool for future hydro development and other construction projects elsewhere in the province.

During the year, Mr. Garry H. Beatty was appointed to the position of President and Chief Executive Officer of Manitoba Hydro. Mr. Beatty was formerly Vice-President, Finance and Chief Financial Officer for the utility. His managerial and financial skills will bring a new dimension to the management of the Corporation, at a time when the utility's asset base is increasing and corporate planning strategies depend on an extensive mix of disciplines.

Manitoba Hydro is proud of its record of service to our customers during the past year as well as its contribution to the overall economic and social development of our province.

On behalf of the Manitoba Hydro-Electric Board, I would like to express our appreciation to the management and staff for their hard work which continues to provide Manitobans with one of the most economical and reliable electrical systems in the world.

M. Eliesen

Marc Eliesen
Chairperson
Board of Directors
The Manitoba
Hydro-Electric Board

President's Message

"The best interest of our Manitoba customers is the fundamental consideration underlying all our activities..."



It has been a relatively successful year for the Corporation, with revenues exceeding expenses by \$13.4 million. This is the third consecutive year in which a contribution was made to reserves, bringing the total to \$137.3 million. The reserve level is still significantly below the current target minimum level of \$180 million which we estimate is required to enable the Corporation to absorb the financial impact of two successive years of poor water conditions.

Extraprovincial power sales to neighbouring utilities were one of the year's bright spots. Fuelled by excellent water conditions, revenue from these sales reached a record \$113.5 million. These revenues illustrate the value to Manitoba customers of the

export sales program. While unusually mild weather conditions prevailed in Manitoba over the past winter, resulting in lower than anticipated domestic consumption, the Corporation was able to move energy to extraprovincial customers.

The Government of Manitoba has announced its intention to amend the Energy Rate Stabilization Act so that, effective April 1, 1987, Manitoba Hydro will assume the cost of foreign exchange fluctuations on all new foreign debt and all existing U.S. debt. The resulting increase in costs will be mitigated by an increase in electricity rates and a decrease in water rentals paid to the Province. Despite all these influences, the electricity rate structure in Manitoba will continue to be the lowest in Canada.

The Corporation's goal today, as in the past, is to meet Manitoba demand for electric power with a supply which is reliable and cost-effective. The best interest of our Manitoba customers is the fundamental consideration underlying all our activities—whether that activity is a potential sale to a neighbouring utility or a service extension to an isolated part of the province.

Manitoba Hydro continued with its major programs to extend central station power service, to enhance system reliability, and to strengthen the power supply to rural, remote and northern areas of the province. All of these measures will continue to improve electrical service for Manitobans in the years to come.

Our major construction project, the Limestone Gen-

erating Station, is on schedule and is expected to begin producing power in 1990. With over 80 per cent of the major contracts awarded, the estimated total cost for this station was further reduced to \$1.73 billion, a reduction of 42 per cent from earlier forecasts.

Manitoba Hydro's greatest asset is the knowledge and dedication of our employees. Within the Corporation, a vital affirmative action thrust is underway in an effort to redress long-standing systemic discrimination with regard to women, natives and physically handicapped individuals. While much work remains to be done, important steps have been taken to break down institutional barriers and to increase target group participation.

I have come to appreciate the skills and dedication which our employees bring to their primary responsibility of providing electric power to Manitobans. I congratulate them on a job well done and I thank them for the support they have given to the Executive during the past year.

Garry H. Beatty
President and
Chief Executive Officer

The Manitoba Hydro-Electric Board

The Board's 11 members are appointed by the Government of Manitoba to set policies for the Corporation.



Photographed in front of Manitoba Hydro's head office building.

(LEFT TO RIGHT)

Roy D. Minish	Retired businessman	Swan River, Manitoba
Dr. Edmund Kuffel	Dean of Engineering University of Manitoba	Winnipeg, Manitoba
Steven J. Ashton	M.L.A.	Thompson, Manitoba
Dr. Nora E. Losey	Associate Dean of Science University of Manitoba	Winnipeg, Manitoba
Marc Eliesen	Chairperson (also Chairperson and Executive Director of the Manitoba Energy Authority)	Winnipeg, Manitoba
Jack R. London	Professor of Law University of Manitoba	Winnipeg, Manitoba
Rod J. Beaudry	Manitoba Hydro Production Division	Great Falls, Manitoba
Clyde R. McBain	President and General Manager Ancast Industries Ltd.	Winnipeg, Manitoba
William E. Cheater	Manitoba Hydro Regional Services Department	Winnipeg, Manitoba
MISSING.		
Charles E. Curtis	Vice-Chairperson (also Deputy Minister of Finance, Province of Manitoba)	Winnipeg, Manitoba
Saul M. Cherniack, Q.C.	Lawyer	Winnipeg, Manitoba

The Executive

G. H. (Garry) Beatty
*President and
Chief Executive Officer*

J. F. (John) Funnell, q.c.
*General Counsel and
Corporate Secretary*

C. J. (Chris) Goodwin
Senior Advisor

R. M. (Murray) Fraser
*Senior Vice-President
Energy Supply*

R. O. (Ralph) Lambert
*Senior Vice-President
Customer Service and
Marketing*

R. B. (Bob) Brennan
*Vice-President
Finance and Chief
Financial Officer*

W. A. (Art) Derry
*Vice-President
Business Development*

D. S. (Don) Duncan
*Vice-President
Engineering and
Construction*

L. M. (Linda) Jolson
*Vice-President
Corporate Relations*

W. J. (Will) Tishinski
*Vice-President
Operations*



Manitoba Hydro's corporate head office is in Winnipeg, a thriving business community of approximately 620 000 residents in the centre of Canada. Located at the junction of the historic Red and Assiniboine Rivers, Winnipeg is the capital of the province of Manitoba.

Limestone

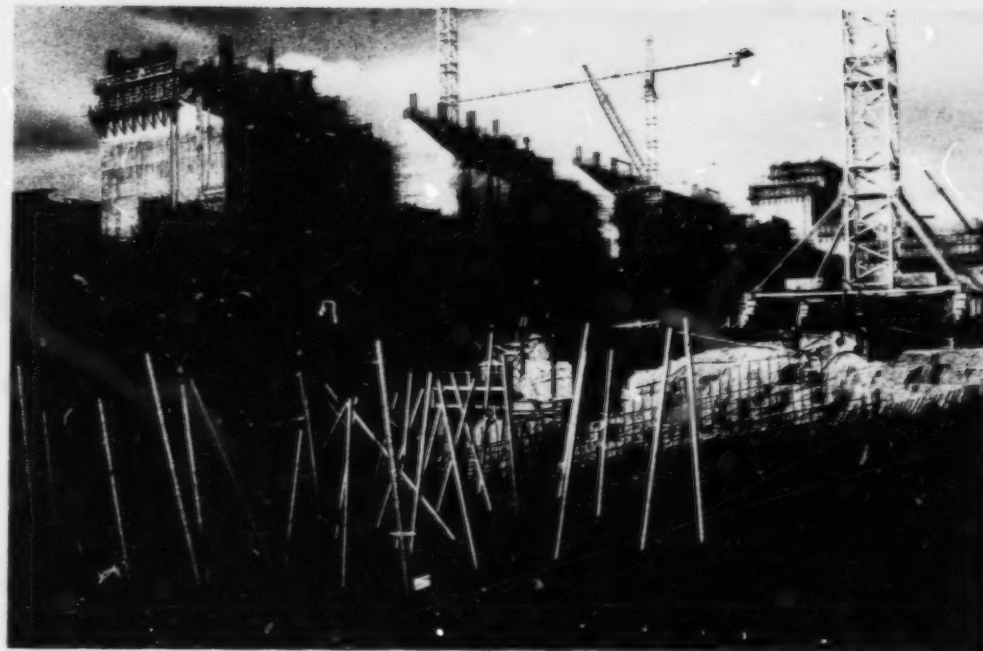
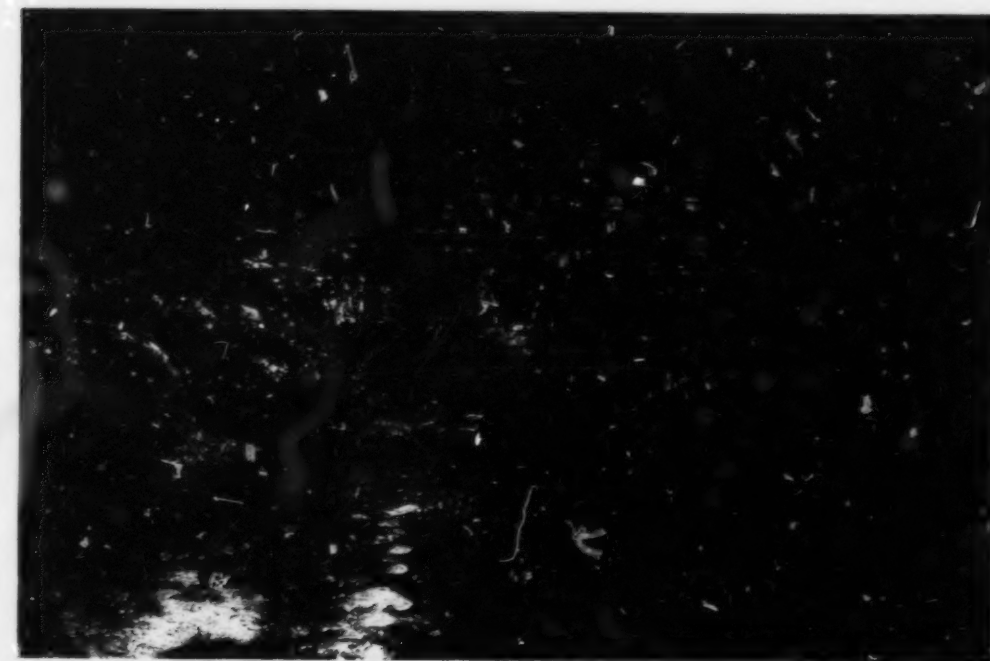
One of North America's largest construction projects, the Limestone Generating Station, entered its second season of construction in the spring of 1986, fulfilling its promise to expand opportunities for employment and business development in Manitoba.

The Limestone Generating Station will be the fifth Manitoba Hydro generating facility on the Nelson River. Its site, Limestone Rapids, is 750 kilometres by air north of Winnipeg and 260 kilometres south of Churchill on Hudson Bay.

When completed in 1992, the Limestone Generating Station will provide a net capacity addition of 1 280 megawatts of electricity primarily to meet the domestic requirements of the province but also to fulfill a contract to export power to Northern States Power Company of Minneapolis. Its cost estimate has been further reduced from the \$1.94 billion reported last year to \$1.73 billion.

The second season of construction on the Limestone project spanned the period from May until November, 1986 and by the time winter set in, the progress in construction could be measured by the height of the major structures that were becoming identifiable on the site. Two shifts of workers laboured around the clock to make the most of a short construction season.

In total, 180 000 cubic metres of concrete, about 30 per cent of the total requirement, were poured last year. Reinforcing steel was



Inside the cofferdam at the Limestone site in May (top photo) and September 1986 (below), showing the depths of the excavation into the riverbed and the results at the end of the season, after the placement of 180 000 cubic metres of concrete.

placed and concrete was formed to begin the intake gate and draft tube structures of the powerhouse, the service bay and transition sections, and the base of the spillway structure.

Construction forces at the project peaked at 1 468 in August. Workers are accommodated in a modern camp close to the construction site and in the nearby townsite of Sundance, which housed 192

families in the 1986 season. Employment at Limestone is expected to reach about 1 700 in each of the next two years.

The project's general civil contractor, known as Bechtel-Kumagai, is a consortium of



UPPER LEFT

Some 13 500 tonnes of reinforcing steel were used to strengthen the concrete structures.



UPPER RIGHT

These portals of concrete, part of the intake structure, will eventually be under water, their gates controlling the flow of water to the turbines.

RIGHT

During the first full construction season, more than 1 400 workers in a number of trades laboured in two shifts from May to October to achieve progress at the site.



Manitobans are realizing maximum economic benefits from Limestone in terms of direct and indirect employment and the use of Manitoba products and services whenever possible.

the Toronto-based Canadian subsidiary of the Bechtel Group Inc. of San Francisco and Kumagai-Gumi Ltd. of Tokyo. To support the contractor's activities during the past construction season, 630

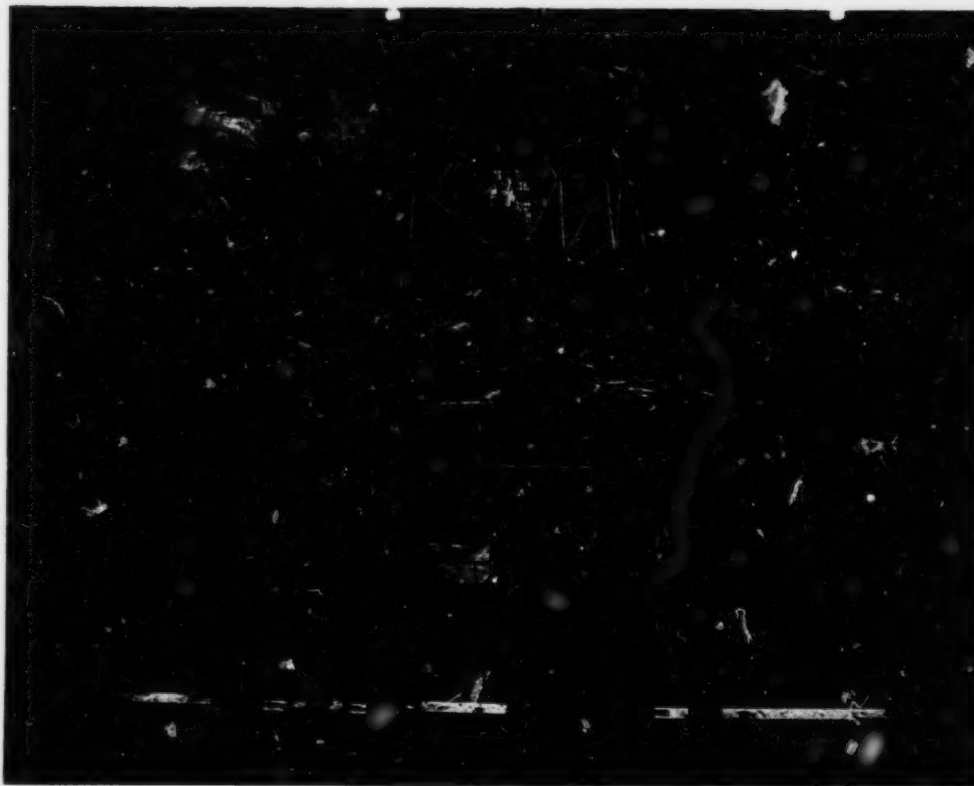
railcars of material were delivered to the site, including 35 000 tonnes of cement and 13 500 tonnes of reinforcing steel.

Engineering and design continued on the turbines and

generators during the year by Canadian General Electric Company Limited, with manufacturing of turbine components to begin in the spring of 1987.

Major contracts awarded

during the 1986-87 year included those for the intake gates, guides and hoists awarded to Dominion Bridge-Winnipeg, a Unit of AMCA International Ltd., and the spillway gates, guides and



The construction of the draft tubes requires highly skilled craftsmen to make the complicated and precise wooden forms necessary to mold the concrete to shape.

hoists awarded to Eclair Canada Limited. Contracts were also awarded for the supply of structural steel, precast bridge beams and the powerhouse cranes.

Manufacturing began on the structural steel and intake gates with the first delivery of structural steel components made to the site in March, 1987.

At the peak of employment in August, 1986, 1 208 workers were employed by contractors under the terms of the Nelson-Burntwood Collective Agreement which governs the labour-relations aspects of the project. The affirmative action measures contained in the Nelson-Burntwood Collective Agreement resulted in significant levels of employment of northerners and northern natives. The monthly participation rates for northerners

ranged from a low of 32 per cent to a high of 60 per cent during 1986. For northern natives, the participation rates ranged from 18 per cent to 37 per cent over the same period. The training opportunities afforded northerners by the Limestone Training and Employment Agency have greatly assisted in achieving these levels of employment.

The Corporation gratefully acknowledges the co-operative efforts of the two parties to the collective agreement, the Allied Hydro Council and the Hydro Projects Management Association, in implementing the special measures in the agreement and achieving native participation rates which the Corporation believes are unprecedented in a Canadian heavy construction project.

When competitive tenders

are called for equipment and supplies for Limestone, Manitoba Hydro emphasizes its requirement for substantial Manitoba content. As part of the tendering procedures, potential Limestone contractors are being asked to identify all suppliers and subcontractors participating in a given tender.

Through these procedures, Manitobans are realizing maximum benefits from Limestone in terms of direct and indirect employment and the use of Manitoba products and services whenever possible. Manitoba content on the project is approaching 90 per cent, as compared to a level of 50 to 55 per cent on the last major Manitoba Hydro project, the Long Spruce Generating Station.

Customer Service

The ultimate purpose of all the activities of Manitoba Hydro is the on-demand delivery of electricity to its customers in a cost-effective and efficient manner. The staff of Manitoba Hydro takes pride in ensuring that generating stations, transmission and distribution lines, stations and other facilities are maintained and operated at standards which will ensure Manitobans of an adequate supply of economic and reliable electrical energy.

Manitoba Hydro residential and farm customers totalled 313 499 at March 31, 1987, an increase of 2.6 per cent over the previous year. Power and general service customers increased by 0.7 per cent to 41 315.

Of the 6 956 new homes built throughout Manitoba Hydro's service area in 1986-87, 2 263 were all-electric. Another 1 199 residences were converted to electric heating during the year, making a total of nearly 91 000 electrically-heated single family residences and apartment units in the Manitoba Hydro service area. Thirty-two per cent of dwellings served by Manitoba Hydro are heated electrically.

Customer Service System

In March, 1987, the Corporation converted its last district office to the computerized Customer Service System (CSS). CSS is a new billing system that has created

a greater degree of autonomy in the districts by allowing our customers to obtain information and resolve any difficulties at the local level. CSS provides Manitoba Hydro customers with instant accessibility to account and service information at 31 field office locations throughout the province, and improves efficiency and management information reporting within the Corporation.

The Regions

To provide effective customer service over an area of 650 000 square kilometres, Manitoba Hydro's service area is divided into three geographic regions. Each is responsible for planning, designing, constructing, operating and maintaining the electrical distribution system in its own area.



- WESTERN
- CENTRAL
- EASTERN

Western Region

Headquartered in Brandon, Manitoba Hydro's Western Region staff of 378 serve 82 600 customers in Manitoba's south-west and Parkland areas. The region was responsible for capital ex-



Western Region Division Manager, Dennis Riehl (left), talks over power requirements with Don Pottinger, Vice-President and General Manager, Simplot Chemical Company, Ltd., a major industrial customer in Western Manitoba.

penditures of more than \$11 million in 1986-87.

Western Region is involved in a major five-year program to bury sections of distribution line in ice-prone areas of the region. The Rural Underground Distribution (RUD) program saw the burial of 109 kilometres of line this fiscal year, with a total of 420 kilometres to be in place by 1989. This program will improve reliability, limit service disruptions and reduce storm damage. In addition, the Corporation is continuing to install equipment in its stations to melt the ice that can build up on lines during storms.

Upgrading of rural distribution facilities continued during the year with the replacement of old transformers with higher-rated units, thereby allowing for the increased electrical loads now required on modern farms. In 1986-87, 313 new pole-mounted transformers were placed in service in areas around Souris, Mafeking, Camperville and Oak Lake.

Under the provincial government's Main Street program, Manitoba Hydro has been working with municipalities, towns and villages



Myron Musick, Central Region Division Manager, reviews the capabilities of the Customer Service System, now providing billing information instantly to Manitoba Hydro customers throughout the province.

to add ornamental street lighting to enhance the main street areas. Last year, Western Region worked with the communities of Angusville, Dauphin, Mafeking and Neepawa to install ornamental lighting.

Central Region

Manitoba Hydro's Central Region provides service in the south-central area of the province, including the suburban areas of Winnipeg not served by city-owned Winnipeg Hydro. Of the three regions, it has the largest number of customers to look after, some 182 700 in total. Five hundred and fifty-three employees serve the needs of the customers in the region.

In order to maintain and upgrade the electrical distribution facilities in the region during the last fiscal year, a total of \$12.5 million in capital expenditures was required.

Central Region is also heavily involved in the Rural Underground Distribution program, having buried 60 kilometres of distribution line during the 1986-87 year.



Eastern Region Division Manager Al Macatavish (left), discusses the progress of construction with regional staff at a transformer station.

Eastern Region

Geographically the largest of the three regions, Manitoba Hydro's Eastern Region covers 560 000 square kilometres of the province and is responsible for more than 89 500 customers. The regional office in Selkirk directs the activities of 457 employees in the region.

The region is responsible for maintaining a large portion of the major transmission lines in the Manitoba Hydro system.

Eastern Region is also involved in upgrading the load capacity in many rural areas, having completed work in the St. Martin, Koostatak and Matheson Island areas in the past year. This work involved placing new transformers in operation, improving service to about 500 customers in these areas.

Construction of the new Selkirk Service Centre began in September, 1986 and is scheduled for completion early in the 1987-88 fiscal year. The 2 800 square metre building will accommodate the Selkirk District office, the Interlake Area office and the Construction and Maintenance sections of Eastern Region.

Records Set For Electrical Production

A record 22.9 billion kilowatt hours of electricity were generated by Manitoba Hydro's 11 hydraulic plants in 1986-87. This was 3.6 per cent higher than last year's record of 22.1 billion kilowatt hours.

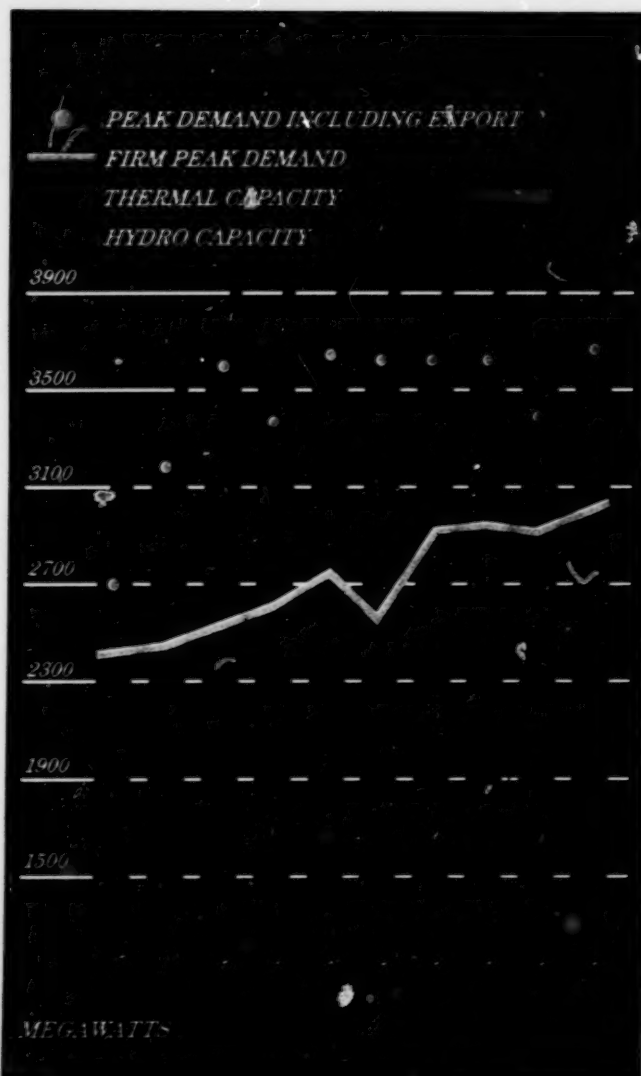
The total amount of energy generated and purchased during the year by the integrated Manitoba system comprised of Manitoba Hydro and Winnipeg Hydro, rose to an all-time high of 24.2 billion kilowatt hours. This was an

increase of 3.2 per cent over the previous record of 23.5 billion kilowatt hours in 1985-86.

Hydraulic generating stations produced 99.1 per cent of the Manitoba system's total requirements, including exports, compared with 98.9 per cent last year. Thermal generation produced 0.4 per cent while 0.5 per cent came from outside the province.

The record hydraulic generation can be attributed to optimum flows on the Nelson

INTEGRATED SYSTEM 10-YEAR COMPARISON
CAPACITY AND FIRM PEAK DEMANDS IN MEGAWATTS
FOR FISCAL YEAR ENDED MARCH 31



SOURCE OF ELECTRICAL ENERGY
GENERATED AND PURCHASED
FOR FISCAL YEAR ENDED MARCH 31, 1987



River, resulting in new records for annual generation for the Kettle and Long Spruce Generating Stations. The Nelson River plants contributed 74.3 per cent of total generation in 1986-87, while the Winnipeg River contributed 17.4 per cent, the Saskatchewan River 7.2 per cent and the Laurie River plants 0.2 per cent.

Diesel generators supply power to communities not connected to the central supply grid and last year these

generating units produced 46.3 million kilowatt hours, compared to 46.5 million kilowatt hours in 1985-86. The plant at Churchill accounted for almost 57 per cent of the total. There were 14 communities supplied by diesel plants in 1986-87 compared with 16 last year.

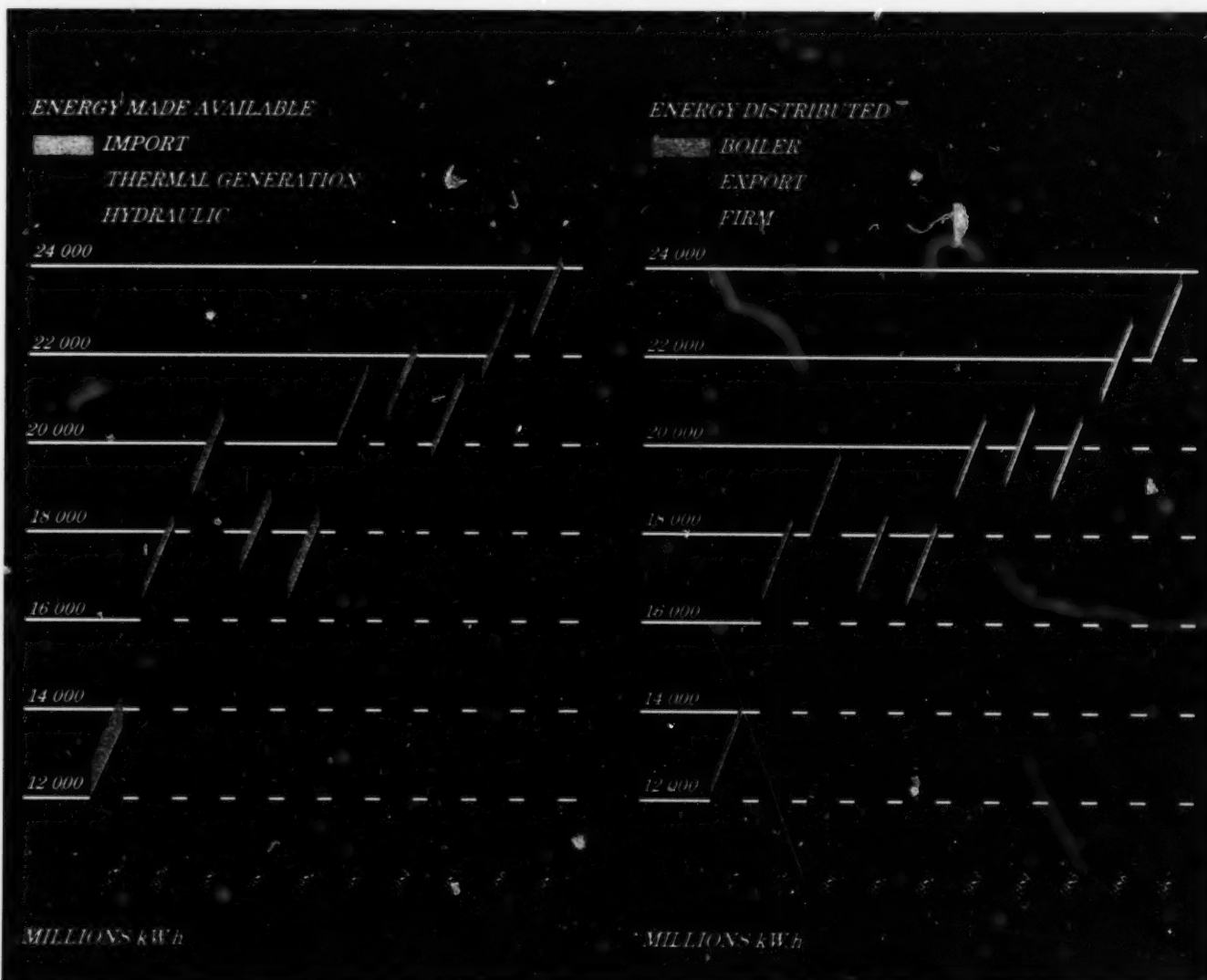
Manitoba customers used 15.5 billion kilowatt hours of electricity during the year, an increase of 0.9 per cent over 1985-86. The mild winter experienced by Manitobans

had an effect on consumption, keeping the increase lower than might otherwise have been expected.

The peak demand for electricity on the Manitoba system in 1986-87 occurred on Friday, January 23, 1987, at 8:12 a.m., resulting in an all-time high load for Manitoba. The load reached 3 011 megawatts, an increase of 70 megawatts over last year and up 59 megawatts from the previous record of 2 952 megawatts in the 1984-85 fiscal year.

Export sales of electricity increased by 7.4 per cent to reach 7.8 billion kilowatt hours in 1986-87. Sales to the U.S. accounted for 89.4 per cent of exports, Ontario for 10.4 per cent and Saskatchewan for 0.2 per cent. Total export revenues also established a new record of \$113.5 million compared with \$112.8 million last year.

**INTEGRATED SYSTEM 10-YEAR COMPARISON
ENERGY GENERATION, PURCHASES AND SALES IN MILLIONS OF kW.h
FOR FISCAL YEAR ENDED MARCH 31**



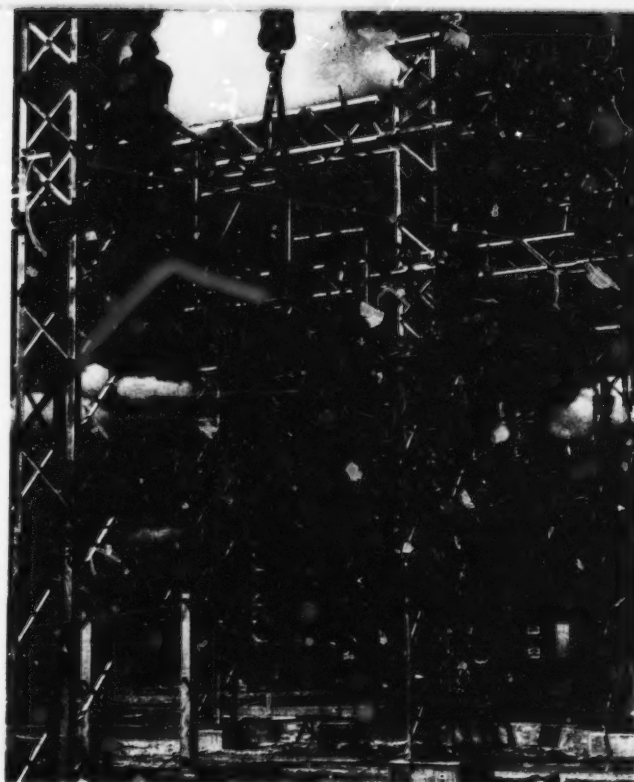
System Development

Manitoba Hydro was a pioneer in the development of High Voltage Direct Current (HVDC) transmission technology as a means of delivering the power generated at the Nelson River to southern load centres.

During the year, the Corporation successfully implemented the world's first commercially operable High Voltage Direct Current paralleling system. Although the HVDC system has performed reliably over the years, a series of tests conducted on the Bipole 1 and Bipole 2 lines proved that, through this process of paralleling, transmission of power from the Nelson River plants could continue even with the loss of one of the bipole lines, thereby enhancing system security.

Central Supply Expansion

A new 138-kilovolt transmission line to Churchill was nearing completion by the end of the 1986-87 fiscal year. Connected to the central system at Gillam, the new line required the placement of 848 towers along the 270-kilometre route and was a major undertaking for Manitoba Hydro. When completed by the end of April, 1987, the new transmission line will allow Churchill residents and businesses access to electrical service from the provincial grid, instead of the more restrictive and costly diesel service. In addition to Manitoba Hydro's funding, capital contributions from both the



One of the specially-designed tubular towers being erected to extend the central power system to Churchill.

provincial and federal governments were made available through the 1984 Canada-Manitoba Subsidiary Agreement on Churchill.

Early in March, 1987 the communities of Little Grand Rapids and Pauingassi were connected to Manitoba's central electrical supply, replacing the diesel electric service. The addition of these two communities marked the end

of a five-year program that extended the central power grid to five remote communities on the east side of Lake Winnipeg. The communities of Bloodvein, Berens River and Poplar River were connected in previous years. The 105 customers in Little Grand Rapids and the 60 customers in Pauingassi were previously limited to 15 amp capacity but, with the connection to central supply, they can now use larger appliances as well as convert to electric space heating. The five-year program was funded jointly by the federal Department of Indian and Northern Affairs and by Manitoba Hydro.

Stations

A major new transformer station was completed south of Portage la Prairie in November, 1986, enhancing service in the area by providing voltage and capacity improvements.

Construction has started on a major new transformer station near Richer, to serve

Construction began during the year on a major transformer station at Richer, to enhance capacity in the Steinbach area.

the Steinbach area, and at Jenpeg, to serve Cross Lake. Both of these stations will be in service in the fall of 1987.

Work continued during the year on the design of a major 230-kilovolt transmission line from Letellier to St. Leon. The line will supply a new transformer station near Morden as well as provide greater reliability through an alternative source of supply in an ice-prone area of Manitoba.

Design work is in progress for a new station at Cranberry Portage, scheduled to be in service in the fall of 1988.

Five new distribution substations were built and placed in service at Komarno, Little Grand Rapids, Whitemouth North, Woodridge and Pine River. Transformer capacity increases were completed at 19 distribution substations.

Maintenance

Each year, Manitoba Hydro undertakes to assess the condition of its generating and converter stations and its dams and control structures. Ongoing attention to its major structures enables Manitoba Hydro to extend the useful life of these facilities and to operate them in the most efficient manner.

Major electrical and mechanical equipment at the 63-year old Great Falls Generating Station and at the 55-year old Seven Sisters Generating Station is being rebuilt. Begun in 1985, this work will span 10 years and cost an estimated \$16 million.

Energy Exports

The Manitoba Energy Authority, in conjunction with Manitoba Hydro, continued negotiations during the year with a number of interested groups for the sale of electricity. Electric utilities in Canada and the U.S. have indicated their ongoing interest in obtaining reliable, renewable electricity from Manitoba Hydro.

In January, 1987, Manitoba Hydro applied to the National Energy Board for a licence to export 200 megawatts of firm power to Northern States Power Company in the summers of 1993 to 1996. In February, 1987, an agreement was signed with Minnesota Power & Light Company for a seasonal exchange of 50 megawatts of power, the power being exported from Manitoba in the summer of 1987 and returned in the winter of 1989.

Negotiations continued on a power sale and diversity exchange with U.S. utilities from Minnesota, Wisconsin and Iowa known as the Upper Mississippi Power Group. These transactions would require a new interconnection to the U.S.

In addition, discussions continued with Ontario Hydro on the possibility of power sales ranging from 200 megawatts to 1 000 megawatts starting in the late 1990s.

There were also discussions with Saskatchewan Power Corporation and other U.S. utilities concerning possible future sales.

Safety First

For the 23rd consecutive year, Manitoba Hydro's safety record ranked among the top three of 14 major Canadian electrical utilities.

In the category combining normal electric utility operations and heavy construction, Manitoba Hydro was second in the country for the calendar year 1986. The number of disabling injuries per million man-hours worked was 7.5, a decrease from 7.6 the previous year.

There were two employee fatalities during the year as a result of a tragic accident near Selkirk in which a chartered aircraft crashed into the Red River. Two of the four Manitoba Hydro workers on board drowned before rescue could be achieved.

For the calendar year 1986, the Corporation's vehicle driving record was the best among the 14 major utilities in Canada. The frequency rate for the Corporate fleet was 2.2 recordable accidents per million kilometres driven.

Losses to Corporate property due to fire were among the lowest on record due to an active fire prevention and protection program.

Introduced last year, Manitoba Hydro's Youth Safety Program proved popular with schools and youth groups, with more than 206 presentations having taken place, reaching some 9 700 children. The presentation features a model of a small town which is used to demonstrate a variety of electrical hazards.

Health education programs for employees continued during the year. A policy of



Presentations on electrical safety were made to almost 10 000 Manitoba children during the year.

"No Smoking in the Workplace Except in Designated Areas" was adopted during the year and has been highly successful. In compliance with new provincial government regulations, more than 2 000 workers who are or have been subjected to high noise levels were provided with a hearing conservation education program as well as audiometric testing. This will be an ongoing program. Presentations continued on the subjects of hypertension, back-care, cancer and risk factors in heart disease. These programs have been well received with a high degree of employee participation.

Manitoba Hydro's 35 Workplace Safety and Health Committees are operating well and making an important contribution to accident prevention within the Corporation.

A new gas chromatograph assists in Manitoba Hydro's testing program to detect PCB contaminants in oil-filled electrical apparatus.

Taking Care of PCBs

PCBs (polychlorinated biphenyls) are environmentally persistent substances which are difficult to destroy.

Manitoba Hydro's program of removing PCBs from contaminated insulating oil continued in 1986. Manitoba Hydro operates equipment that chemically destroys the PCB molecule, resulting in environmentally safe by-products that can be disposed of in landfill sites while the oil is made re-usable. During the year, 760 000 litres of PCB-contaminated oil were processed, including 28 000 litres for other organizations on a contract basis. Similar quantities are projected for the next four years after which quantities processed each year will decrease.

Manitoba Hydro's oil laboratory at its Waverley Service Centre in Winnipeg was equipped with a new gas chromatograph during the year to meet the testing requirements for over 6 500 pieces of oil-filled apparatus in 1986. Testing programs will continue at this level for several years.



Research and Development

Since the early 1970s, Manitoba Hydro has been actively involved in research and development projects. Research and development activities provide scientific and technological support for the planning, design, construction and operation of the province's power system.

In 1986-87, Manitoba Hydro was involved in 108 research projects, many of them in conjunction with other organizations such as the Manitoba HVDC Research Centre, the Industrial Applications of Microelectronics Centre (IAMC), the University of Manitoba and the Canadian Electrical Association.

One of the highlights of the program this year was the successful development of an A.C. Fault Locator/Power Line Monitor in association with the Industrial Applications of Microelectronics Centre. Attached to electrical distribution facilities, the device detects and pinpoints the fault location on the network. This can save substantial time compared to visually searching for a power line fault, permitting a faster restoration of service to customers. IAMC has entered into a contract with Westinghouse Canada Inc., a manufacturer and worldwide distributor of electrical products, for the manufacture and marketing of the A.C. Fault Locator/Power Line Monitor.

Affirmative Action

Manitoba Hydro continued its affirmative action measures to ensure that women, natives, and the physically disabled have fair access to employment and developmental opportunities. Women increased their representation in all occupational areas, excluding clerical, but primarily in management and administration. Natives also increased their representation, most significantly in the areas of operating and construction.

Approximately 480 employees in supervisory, administrative and professional positions participated in orientation sessions designed to communicate the policy and clarify the intent, expectations and responsibilities involved in the affirmative action process.

During the year, 12 scholarships were awarded to women and natives entering Engineering, Computer Science and related technology programs. In addition, a Career Development program was designed during the year to assist employees in non-developmental job classifications. Through an individualized training program, the participants gain the competencies and skills necessary to move to other jobs.



Pay Equity

The Pay Equity Act came into effect on October 1, 1986 for all Crown entities, including Manitoba Hydro. The legislation requires the employer, through a negotiation process, to adjust its compensation practices so that the rates of pay for its female dominated classes are equal to the average rate of pay of its male dominated classes performing work of equal or comparable value.

In order to implement the provisions of the Pay Equity Act, Manitoba Hydro appointed a Pay Equity Officer and a Management Pay Equity Implementation Committee during 1986. Negotiations with the involved groups, the International Brotherhood of Electrical Workers, Local 2034; the Canadian Union of Public Employees, Local 998; the Association of Manitoba Hydro Staff and Supervisory Employees; and the Manitoba Hydro Professional Engineers Association, have begun relative to the implementation of the Act.



Employees

Peak employment for the fiscal year occurred in August, 1986 when there were 4 142 employees compared with a peak of 3 853 in August, 1985. A total of 72 employees retired during the year. Four employees completed 40 years of service and 24 attained the 35-year mark. A further 38 employees received 25-year pins while 150 were presented with 15-year pins.

Three-year collective agreements remained in effect for each of the Corporation's three unions; the Association of Manitoba Hydro Staff and Supervisory Employees (A.M.H.S.S.E.), the International Brotherhood of Electrical Workers (I.B.E.W.) Local 2034, and the Canadian Union of Public Employees (C.U.P.E.), Local 998.

Training and Development

Manitoba Hydro has a long-standing commitment to provide training programs for its employees and to encourage further education and development opportunities.

During 1986-87, 427 employees attended professional development and technical seminars inside and outside the province while another 2 171 employees were enrolled in in-house training. A counselling service to help employees with career development was provided to 380 people. Manitoba Hydro is confident that the emphasis on training will pay future dividends in terms of staff excellence and productivity.

Marketing the Skills of Employees

Over the years, the Corporation has developed employees who have gained a substantial degree of knowledge in the establishment and operation of a modern electric utility. Manitoba Hydro's Export Services department, in support of locally-based companies and consultants, has been established to market technical and management skills to countries that want to improve and expand their electric power systems.

Export Services was involved in two projects during the year that began with funding from the Canadian International Development Agency (CIDA). One was a joint venture with Ontario Hydro for training utility staff in Egypt, while the other was also a joint venture with Monenco Consultants Ltd., Teshmont Consultants and Ontario Hydro for power system studies and staff training in China. Services are provided on the basis of recovery of direct costs plus a margin for overhead and profit.



Mitigation

It is Manitoba Hydro's policy to ensure that all who are adversely affected by its projects are dealt with fairly. Manitoba Hydro is continuing to fulfill this policy through mitigation and compensation programs.

The Lake Winnipeg Regulation and Churchill River Diversion projects, undertaken in the early seventies, have had an impact on local residents. In total, Manitoba Hydro has provided \$56.5 million in compensation and remedial measures since the projects' inception to ameliorate loss or damage which has been incurred because of the projects.

The Northern Flood Agreement was signed in December, 1977 by the Northern Flood Committee, the Province of Manitoba, the Government of Canada and Manitoba Hydro, as a vehicle for the five affected Bands and their members to settle disagreements which could arise as to the cause or extent of adverse effects of the projects.

During the fiscal year ending March 31, 1987, Manitoba Hydro provided the Northern Flood Committee with a \$5 million advance payment on account of various claims. The Corporation also began discussions with the parties to the Northern Flood Commit-

tee to establish a framework to achieve the full and final resolution of claims and obligations capable of such resolution, and to achieve a rate and extent of implementation of the Northern Flood Agreement acceptable to all parties.

Since 1979, there have been 2 191 individual claims submitted. As of March 31, 1987, Manitoba Hydro has settled 1 938 claims; 155 claims are still under investigation; and 98 claims have been rejected.

In total, 145 arbitration claims have been filed with the Arbitrator under the Northern Flood Agreement, of which 132 involve Manitoba Hydro. Six of the 145 claims have been heard by the Arbitrator and another 68 have been settled outside of arbitration or discontinued. The balance of the claims are under active negotiation.

Since 1975, benefits amounting to more than \$31.5 million have been provided to the five Indian Bands and their members who are signatories to the Northern Flood Agreement.

Manitoba Hydro Generating Stations and Capabilities

For the Year Ended March 31, 1987 (Normal Winter Capability)

INTERCONNECTED CAPABILITIES

STATION	LOCATION	No. of Units	Winter Capability in Kilowatts
HYDRAULIC: Great Falls	Winnipeg River	6	132 000
Seven Sisters	Winnipeg River	6	150 000
Pine Falls	Winnipeg River	6	82 000
McArthur Falls	Winnipeg River	8	56 000
Grand Rapids	Saskatchewan River	4	472 000
Kelsey	Nelson River	7	224 000
Kettle	Nelson River	12	1 272 000
Jenpeg	Nelson River	6	126 000
Long Spruce	Nelson River	10	980 000
Laurie River(2)	Laurie River	3	10 000
TOTAL HYDRAULIC			3 504 000
THERMAL: Brandon		5	237 000
Selkirk		2	132 000
TOTAL THERMAL			369 000
GAS TURBINE: Selkirk		2	25 000
TOTAL			3 898 000

ISOLATED CAPABILITIES

DIESEL:	Brochet	650
	Churchill	11 248
	Garden Hill	1 600
	Gods Lake Narrows	1 600
	Gods River	525
	Lac Brochet	525
	Oxford House	1 400
	Pikwitonei	350
	Red Sucker Lake	650
	St. Theresa	1 975
	Shamattawa	525
	Tadoule Lake	600
	Thicket Portage	300
	Waasagomach	1 100
	TOTAL	23 048

TOTAL GENERATING CAPABILITY **3 921 048**

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FINANCIAL SECTION

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The Manitoba Hydro-Electric Board

FINANCIAL REVIEW

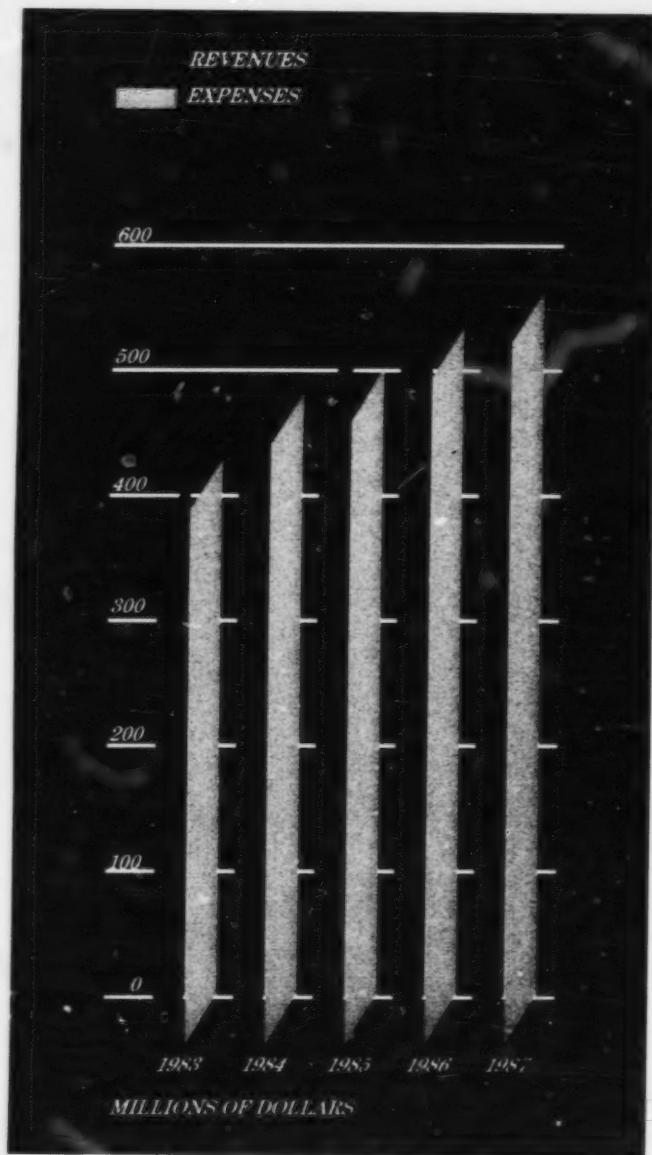
Net income for the 1986-87 fiscal year amounted to \$13.4 million. This is the third consecutive year during which Corporate revenues have exceeded expenses. Although total reserves increased to \$137.3 million,

this amount continues to be lower than the targeted minimum reserve level of \$180—\$200 million considered to be appropriate for the Corporation. The Corporation is committed to increasing its reserve

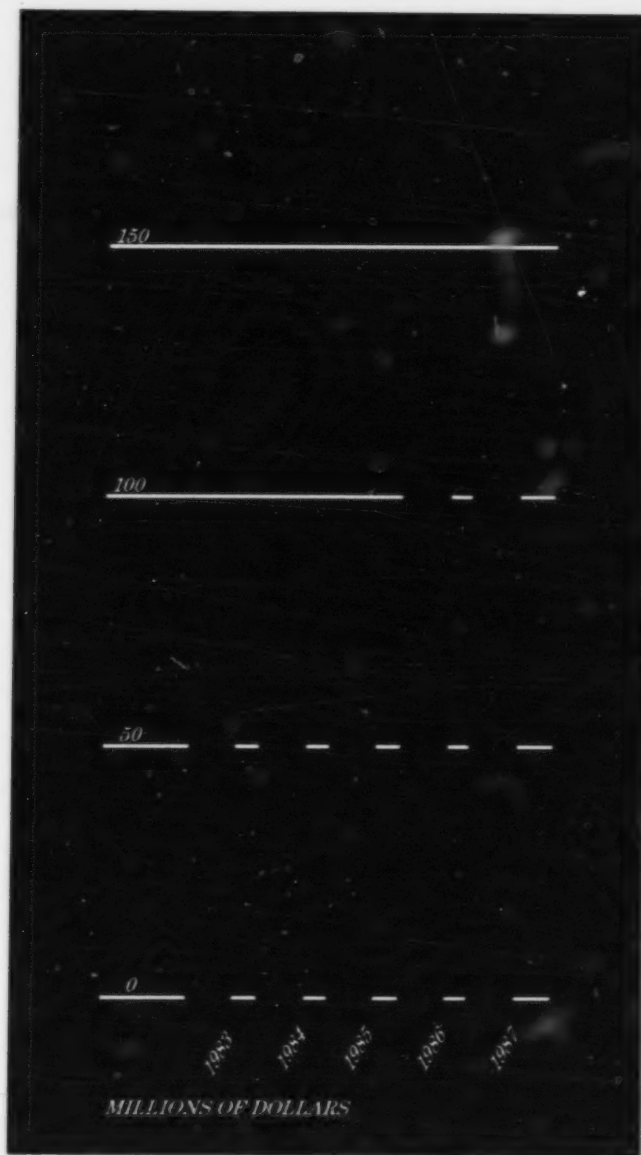
levels but in doing so will keep rate increases closely aligned with the rate of inflation.

Revenues increased \$17.1 million or 3.1% to \$569.7 million due to the rate increase of 2.8% imple-

mented April 1, 1986 and to an improvement in the hydraulic generation from the integrated system. Expenses increased \$33.9 million or 6.5% to \$556.3 million mainly due to increases in most expenses, including water rentals.



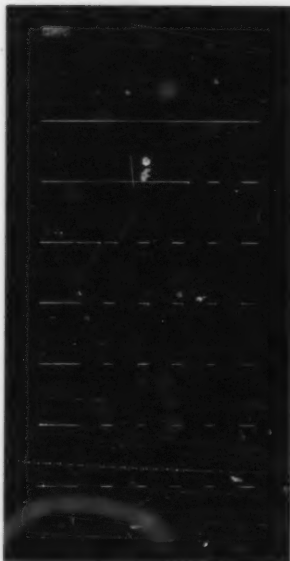
REVENUES
VS
EXPENSES



RESERVE
LEVELS

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REVENUES



SOURCES OF REVENUES

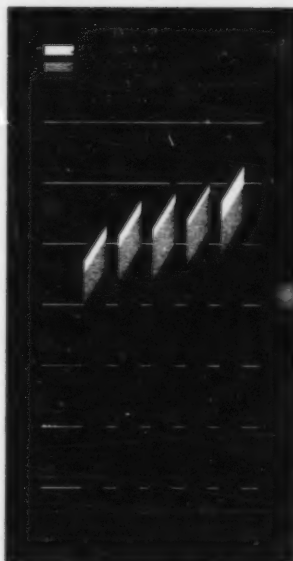
Sale of Power—Manitoba

Total generation from the integrated system increased by 0.8 billion kilowatt hours to a total of 24.1 billion kilowatt hours. Sales of electricity to customers within Manitoba increased by 2.5% to 12.9 billion kilowatt hours with the majority of increased consumption occurring in the Power sector. The exceptionally mild weather conditions experienced in the period from December 1986 to March 1987, compared to the previous fiscal year, limited growth in sales to Manitoba customers. The growth in provincial consumption combined with the 2.8% rate increase implemented April 1, 1986 resulted in revenue from Manitoba customers of \$449.3 million, an increase of 3.8% over 1985-86.

Sale of Power—Extraprovincial

Extraprovincial revenue increased to a record \$113.5 million. Energy sales were 7.8 billion kilowatt hours, a 7.4% increase over the 7.3 billion kilowatt hours sold in 1985-86. The increased energy available due to the weather related reduction in Manitoba load requirements over the winter was sold to systems outside Manitoba. In spite of the quantity of surplus energy available the average return per kWh remained relatively strong at 14.5 mills, a reduction from the average return of 15.5 mills per kWh in 1985-86.

EXPENSES



DISTRIBUTION OF EXPENSES

Finance Expense

Finance expense decreased by \$4.2 million to \$242.6 million. The effect of internally generated funds reduced the requirement for external financing. This, combined with lower interest rates and the improvement of the Canadian dollar over the United States dollar, resulted in decreased costs associated with short-term debt. The costs of higher levels of long-term debt were partially offset by slightly more favourable rates on replacement issues and increased finance expense allocated to construction, primarily on the Limestone project.

Operating and Administrative

Operating and Administrative costs increased by \$14.1 million to \$187.9 million. Costs associated with the operation, maintenance and administration of the Corporation were \$166.7 million, an increase of \$12.5 million over 1985-86. Transmission line lease payments accounted for the balance of the increase.

Depreciation

Depreciation charges increased by \$3.2 million mainly due to system improvements to plant in service and the impact of the most recent direct current transmission facilities being in service for the entire fiscal year as compared to a part year in 1985-86.

Water Rentals

Water rental charges increased by 110.5% from \$17.8 million to \$37.6 million due to an increase in rates from \$4.75 to \$11.75 per horsepower-year effective July 11, 1986 and to a 3.6% increase in hydraulic generation.

Fuel and Power Purchased

Fuel and power purchased increased by \$1.1 million to \$10.5 million reflecting increased utilization of thermal generation and power purchases for the resale of energy to export markets.

CAPITAL EXPENDITURES

Investments in fixed assets for the year were \$237.8 million, which is \$35.8 million higher than in 1985-86. Capital expenditures of \$140.7 million were incurred on the Limestone Generating Station and \$7.4 million on the Churchill transmission facilities with the balance occurring on other additions, modifications and service extensions throughout the Province.

FINANCING ACTIVITIES

For the purpose of financing capital construction and to retire long-term debt, the Corporation utilizes cash from operations and external financing. In the 1986-87 fiscal year cash provided by operations was \$111.7 million (1985-86 \$102.7 million) and external financing totalled \$334.5 million. As at March 31, 1987 outstanding long-term debt (net of sinking fund) was \$2 652.1 million compared to \$2 523.8 million as at March 31, 1986.

RATE INCREASE

In January 1987, the Corporation announced an average rate increase of 5% effective April 1, 1987. Pursuant to Section 39 (4) of the Manitoba Hydro Act, the Consumers' Association of Canada (Manitoba), the Manitoba Society of Seniors Inc. and seven individual users of power have applied to the Public Utilities Board for a review of prices charged for power by Manitoba Hydro. The appeal process has commenced and hearings are scheduled to commence in the fall of 1987.

ENERGY RATE STABILIZATION ACT

In accordance with the provisions of The Energy Rate Stabilization Act, the costs associated with Manitoba Hydro's foreign long-term debt have been assumed by the Province of Manitoba and replaced with Canadian equivalent costs based on Canadian rates for similar terms as at the date the debt was incurred. The Province of Manitoba has confirmed to the Corporation that had the Province of Manitoba not assumed the cost of foreign debt at April 1, 1979 the valuation of the long-term debt of the Corporation as at March 31, 1987 would have been increased by approximately \$551 million (1986—\$590 million) when translated at the year end rates of exchange.

ENERGY RATE STABILIZATION ACT AMENDMENT

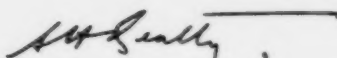
In the Budget Address of March 16, 1987 the Minister of Finance of the Province of Manitoba announced amendments to the Energy Rate Stabilization Act. Effective April 1, 1987 the Corporation will be responsible for all translation gains or losses on existing United States denominated debt and on all new foreign borrowings transacted on or after April 1, 1987. The Province of Manitoba will retain responsibility for all existing foreign debt denominated in other than United States currency.

The Minister of Finance also announced a reduction in water rental rates from \$11.75 to \$8.96 per horsepower-year effective April 1, 1987 and a special increase in general consumer rates of 4.7% effective April 1, 1987.

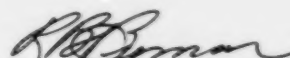
The Manitoba Hydro-Electric Board

MANAGEMENT REPORT

The accompanying financial statements have been prepared by management in accordance with generally accepted accounting principles in Canada, applied on a basis consistent with that of the previous year. In management's opinion, the financial statements have been properly prepared within the framework of the accounting principles set out in Note 1 to the financial statements and within reasonable limits of materiality incorporating all important elements and data available to June 12, 1987. The financial information contained in the Annual Report is based on the financial statements.



G.H. Beatty
President and Chief Executive
Officer

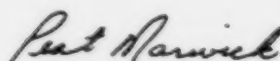


R.B. Brennan, C.A.
Vice-President Finance and Chief Financial
Officer

AUDITORS' REPORT

We have examined the balance sheet of The Manitoba Hydro-Electric Board as at March 31, 1987 and the statements of operations, reserves and changes in cash resources for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Corporation as at March 31, 1987, and the results of its operations and the changes in its cash resources for the year then ended in accordance with the accounting principles set out in Note 1 to the financial statements applied on a basis consistent with that of the preceding year.



CHARTERED ACCOUNTANTS

Winnipeg, Canada
June 12, 1987

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Statement of Operations

FOR THE YEAR ENDED MARCH 31, 1987 (with 1986 figures for comparison)

	<u>1987</u>	<u>1986</u>
	(thousands of dollars)	
REVENUES		
Sale of power		
Manitoba	\$449 271	\$432 937
Extraprovincial	113 489	112 846
Other revenue	6 928	6 820
	<u>569 688</u>	<u>552 603</u>
EXPENSES		
Operating and administrative	187 941	173 866
Depreciation — plant	77 683	74 470
Water rentals	37 582	17 050
Fuel and power purchased	10 460	9 399
	<u>313 666</u>	<u>275 585</u>
Net income before finance expense	<u>256 022</u>	<u>277 018</u>
FINANCE EXPENSE (Note 2)	<u>242 574</u>	<u>246 753</u>
NET INCOME TRANSFERRED TO RESERVES	<u>\$ 13 448</u>	<u>\$ 30 265</u>

The accompanying notes are an integral part of the financial statements.

The Manitoba Hydro-Electric Board

Balance Sheet

AS AT MARCH 31, 1987 (with 1986 figures for comparison)

ASSETS

1987

1986

(thousands of dollars)

ELECTRIC UTILITY PLANT (Note 3)

In service	\$3 395 825	\$3 314 378
Less: Accumulated depreciation	854 833	783 776
	<u>2 540 992</u>	<u>2 530 602</u>
Construction in progress	473 655	326 005
	<u>3 014 647</u>	<u>2 856 607</u>

CURRENT ASSETS

Temporary investments	19 000	48 649
Accounts receivable	71 477	75 024
Accrued revenue	15 541	19 077
Interest receivable and accrued	11 690	11 762
Materials and supplies (at average cost)	29 514	30 228
Prepaid expenses	1 395	1 413
	<u>148 617</u>	<u>186 153</u>

OTHER ASSETS

Investments (at cost)	1 931	1 988
Deferred charges and advances (Note 4)	74 933	84 507
	<u>76 864</u>	<u>86 495</u>

\$3 240 128

\$3 129 255

Approved on behalf of the Board:

M. Elisen

Chairperson

Clutter

Vice-Chairperson

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LIABILITIES AND RESERVES

	1987	1986
	(thousands of dollars)	
LONG-TERM DEBT (Note 5)	<u>\$2 652 128</u>	<u>\$2 523 786</u>
CURRENT LIABILITIES		
Bank balances	3 801	12 238
Accounts payable and accrued liabilities	57 772	53 334
Notes payable (due within one year)	44 510	152 278
Contract holdbacks	5 787	3 663
Accrued interest	90 442	89 268
Current portion of long-term debt (Note 5)	<u>153 126</u>	<u>78 574</u>
	<u>355 498</u>	<u>389 355</u>
DEFERRED LIABILITIES	18 843	16 750
DEFERRED CREDITS (Note 6)	<u>76 412</u>	<u>75 505</u>
RESERVES (Note 7)	<u>137 307</u>	<u>123 859</u>
	<u>\$3 240 128</u>	<u>\$3 129 255</u>

The accompanying notes are an integral part of the financial statements.

The Manitoba Hydro-Electric Board

Statement of Reserves

FOR THE YEAR ENDED MARCH 31, 1987 (with 1986 figures for comparison)

			<u>1987</u>	<u>1986</u>
			(thousands of dollars)	
	<u>Contingency and General</u>	<u>Rate Stabilization</u>	<u>Total</u>	<u>Total</u>
BALANCE — BEGINNING OF YEAR	\$123 829	\$30	\$123 859	\$93 594
Net income				
transferred from operations	<u>13 448</u>	<u>—</u>	<u>13 448</u>	<u>30 265</u>
BALANCE — END OF YEAR	<u>\$137 277</u>	<u>\$30</u>	<u>\$137 307</u>	<u>\$123 859</u>

The accompanying notes are an integral part of the financial statements.

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Statement of Changes in Cash Resources

FOR THE YEAR ENDED MARCH 31, 1987 (with 1986 figures for comparison)

	1987	1986
	(thousands of dollars)	
OPERATING ACTIVITIES		
Cash from operations		
Net income	\$ 13 448	\$ 30 265
Depreciation—plant	77 683	74 470
Amortization of debt discount and expense	4 489	3 688
Other	446	(585)
Non-cash working capital change (see below)	15 623	(5 099)
Cash and cash equivalents provided by operating activities	111 689	102 739
FINANCING ACTIVITIES		
Retirement of long-term debt	(107 663)	(200 149)
Sinking fund withdrawals	14 891	29 478
Proceeds from long-term debt	334 454	389 521
Discount on long-term debt	(3 741)	(9 507)
Contributions and advances in aid of construction, less refunds	10 429	12 642
Decrease in notes payable	(107 768)	(26 581)
Sinking fund payment	(42 055)	(39 698)
Deferred cost of matured forward exchange contracts	10 725	(3 161)
Other	(4 430)	(2 439)
Cash and cash equivalents provided by financing activities	104 842	150 106
INVESTING ACTIVITIES		
Additions to electric utility plant	(237 800)	(202 039)
Other	57	12
Cash and cash equivalents used in investing activities	(237 743)	(202 027)
(DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(21 212)	50 818
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR	36 411	(14 407)
CASH AND CASH EQUIVALENTS AT END OF YEAR	\$ 15 199	\$ 36 411
Non-cash working capital change		
Accounts receivable	\$ 3 547	\$ (18 722)
Accounts payable and accrued liabilities	4 438	16 898
Accrued revenue	3 536	(1 305)
Materials and supplies	714	(2 515)
Other	3 388	545
	\$ 15 623	\$ (5 099)

The components of cash and cash equivalents are bank balances and temporary investments.

The accompanying notes are an integral part of the financial statements.

The Manitoba Hydro-Electric Board

Notes to the Financial Statements

FOR THE YEAR ENDED MARCH 31, 1987

NOTE 1 — SIGNIFICANT ACCOUNTING POLICIES

The financial statements have been prepared in accordance with generally accepted accounting principles except for the accounting for pension costs as noted in d) below.

a) Electric Utility Plant

The electric utility plant is stated at cost which consists of contracted services, direct labour, material and expense, a proportionate share of overhead costs and interest applied at the effective rates incurred in financing construction. Finance expense is allocated to construction until a facility becomes operational or a decision is made to abandon, cancel or indefinitely defer construction. The cost of plant removed plus removal costs less salvage value is charged to accumulated depreciation.

Main facilities of major projects under construction become operational on a progressive basis. As such facilities become operational, related construction costs and a pro rata share of related common properties are transferred to plant in service. Once the transfer to plant in service is made, finance expense allocated to construction ceases and depreciation commences.

Depreciation is provided on a straight line basis using the following service lives for major assets:

Hydro-electric generation	67 years
Thermal-electric generation	33 years
Transmission lines and stations	35-50 years
Distribution lines	30-35 years

Depreciation of the transportation fleet amounting to \$3 325 000 (1986 — \$2 949 000) is included in the overall fleet cost which is allocated on a usage basis to capital and operating accounts and is therefore not included as part of the plant depreciation provision.

b) Foreign Exchange:

Long-Term Debt

Long-term debt payable in foreign currencies is recorded at Canadian dollar equivalents using the exchange rates prevailing at the time the debt was incurred.

The Energy Rate Stabilization Act which came into force April 1, 1979 provides for the Province of Manitoba to relieve the Corporation of the costs associated with the foreign debt of Manitoba Hydro by replacing them with Canadian equivalent costs based on Canadian rates for similar terms as at the date the debt was incurred. The Province of Manitoba has confirmed to the Corporation that had the Province of Manitoba not assumed the cost of foreign debt at April 1, 1979 the valuation of the long-term debt of the Corporation as at March 31, 1987 would have been increased by approximately \$551 million (1986 — \$590 million) when translated at the year-end rates of exchange. The Province of Manitoba also confirmed that the amount charged to the Energy Rate Stabilization Act appropriation in the current year was \$65.8 million.

Energy Rate Stabilization Act Amendment

In the Budget Address of March 16, 1987 the Minister of Finance for the Province of Manitoba announced the following amendments to the Energy Rate Stabilization Act, effective April 1, 1987:

i) New Long-Term Debt

Manitoba Hydro will assume responsibility for the translation gains or losses associated with all foreign borrowings transacted on or after April 1, 1987.

Long-term debt will be translated into Canadian currency at the rates of exchange prevailing at the date of the balance sheet and the unrealized exchange gains or losses will be amortized over the remaining life of the related debt and together with realized exchange gains or losses will be credited or charged to operations.

ii) Existing Long-Term Debt

a) In foreign currencies other than United States:

The Province of Manitoba will retain responsibility for the translation gains or losses associated with existing foreign debt denominated in currencies other than United States.

The Province of Manitoba will continue to assume the costs associated with this foreign debt by replacing them with the Canadian equivalent costs based on Canadian rates for similar terms as at the date the debt was incurred.

b) In United States currencies:

Effective April 1, 1987, the foreign exchange risks associated with holding United States denominated debt were transferred by the Province of Manitoba to Manitoba Hydro and accordingly the Corporation will assume responsibility for the translation gains or losses associated with existing foreign debt denominated in United States currencies. The Province of Manitoba will retain the obligation to pay the amounts that have been provided in the Province's accounts in respect of United States denominated debt to March 31, 1987.

The Province of Manitoba has confirmed that this obligation amounts to approximately \$159 million at March 31, 1987. These amounts will be disbursed at the maturity dates of the respective United States issues.

Long-term debt denominated in United States currencies will be translated into Canadian currencies at rates of exchange prevailing at the date of the balance sheet. If the existing United States denominated debt had been translated at the year-end rate of exchange, the impact on the Corporation's long-term debt would have been an increase of approximately \$264 million. The unamortized exchange loss assumed by the

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Corporation, totalling approximately \$105 million, will be amortized over the remaining life of the related debt and together with realized exchange gains or losses will be credited or charged to operations.

As a result of the proposed amendments to the Energy Rate Stabilization Act, and in order to recover the unamortized foreign exchange loss transferred by the Province of Manitoba to Manitoba Hydro, effective April 1, 1987 the Corporation was granted a special 4.7% average rate increase in general consumer revenues and a reduction in the water power rental rate.

As of June 12, 1987 as a result of fluctuations in the Canadian — United States dollar exchange rate the unamortized foreign exchange loss associated with United States denominated debt has increased by approximately \$47 million.

Current Assets and Current Liabilities

Current monetary assets and liabilities denominated in foreign currencies, excluding long-term debt payable within one year, are translated into Canadian currency at rates of exchange prevailing at the date of the balance sheet. The unrealized exchange gains or losses together with realized exchange gains or losses are credited or charged to operations.

Sinking Fund Investments

Sinking fund investments denominated in foreign currencies are translated into Canadian currency at the rates of exchange prevailing at the date of the balance sheet, except where the investments have been hedged by the Minister of Finance of the Province of Manitoba, in which case the rate confirmed by the Province is used in the translation. The unrealized exchange gains or losses are amortized over the remaining life of the investment and together with realized exchange gains or losses are credited or charged to operations.

c) Hedging Program

To reduce foreign exchange risk on United States revenues, the Corporation has fixed the foreign exchange rate for the conversion of a portion of the 1987-88 United States extraprovincial revenue to Canadian dollars by the acquisition of forward exchange contracts. The appropriate portion of the deferred cost of matured foreign exchange contracts will be recognized with the related revenue.

d) Pensions:

Manitoba Civil Service Superannuation Fund

In accordance with the provisions of the Manitoba Civil Service Superannuation Act, the Corporation contributes 50% of the pension disbursements made to retired employees. Such payments are charged to income as incurred and a provision is not made in the accounts to fund current or past service obligations of the Corporation to the Civil Service Superannuation Fund.

According to the formula contained in the actuarial report as at December 31, 1983, Manitoba Hydro's unrecorded liability at December 31, 1986 as a result of the participation of employees under the Civil Service Superannuation Act was:

- i) if no allowance is made for future increases in pension due to increases in the cost of living, \$121 430 000 (1985 — \$108 520 000).
- ii) if allowance is made for future increases in pension due to increases in the cost of living, \$180 662 000 (1985 — \$159 920 000).

An actuarial report as at December 31, 1986 is expected to be completed in the 1987-88 fiscal year.

Manitoba Hydro Retirement Plan

The Manitoba Hydro Retirement Plan is a defined benefit plan which continues to provide benefits to employees and pensioners in respect of service prior to the date each employee entered the Manitoba Civil Service Superannuation Fund. The actuarial report dated October, 1986 indicates an unfunded liability as at July 1, 1986 of \$4.4 million (1985 - \$4.7 million) which is being funded and charged to operations over the next 15 years.

e) Unamortized Debt Discount and Expense

These costs are charged to income over the life of the respective issue.

f) Discount on Sinking Fund Investments

The Corporation records sinking fund investments at par value. The difference between the cost and the par value of the investments is recorded as a premium or discount and the resulting gain or loss is amortized over the remaining life of the investment or charged upon disposal to investment income.

g) Unamortized Planning Studies

These costs are charged to income over a 15 year period.

h) Unbilled Revenue

Revenues are accrued in respect of electricity delivered but as yet unbilled.

NOTE 2 — FINANCE EXPENSE

	1987	1986
	(thousands of dollars)	
Interest on debt	\$327 554	\$321 486
Amortization of debt discount and expense	4 489	3 688
Finance expense allocated to construction	(45 122)	(33 452)
Investment income	(44 347)	(44 969)
	<u>\$242 574</u>	<u>\$246 753</u>

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NOTE 3 — ELECTRIC UTILITY PLANT (at cost)

					1987	1986
	Fixed Assets In Service		Construction In Progress		Total	Total
	Original Cost	Accumulated Depreciation	Book Value			
(thousands of dollars)						
Generation	\$1 863 729	\$401 276	\$1 462 453	\$428 401	\$1 890 854	\$1 771 332
Transmission	206 398	63 241	143 157	7 748	150 905	150 957
Substations	694 835	165 595	529 240	16 170	545 410	543 072
Distribution	504 217	167 081	337 136	8 380	345 516	314 498
Other	126 646	57 640	69 006	12 956	81 962	76 748
	<u>\$3 395 825</u>	<u>\$854 833</u>	<u>\$2 540 992</u>	<u>\$473 655</u>	<u>\$3 014 647</u>	<u>\$2 856 607</u>

NOTE 4 — DEFERRED CHARGES AND ADVANCES

	1987	1986
(thousands of dollars)		
Unamortized bond discount and expense	\$27 469	\$28 216
Unamortized planning study costs	29 425	32 026
Deferred cost of matured forward exchange contracts	7 548	18 273
Advance to the Northern Flood Committee Inc. (Note 8b)	5 090	—
Other	5 401	5 992
	<u>\$74 933</u>	<u>\$84 507</u>

NOTE 5 — LONG-TERM DEBT

The Corporation pays an annual sinking fund installment to the Minister of Finance of the Province of Manitoba as provided by The Manitoba Hydro Act of not less than 1% of the principal amount of the outstanding long-term debt on the preceding March 31, and 4% of the balance in the sinking fund at such date. Such installments would provide for the full retirement of a debt obligation only if the obligation was outstanding for 41 years.

Income earned on sinking fund investments is remitted to the Corporation and is included with investment income for the year.

Manitoba Hydro's debt is guaranteed by the Province of Manitoba.

The weighted average coupon rate on the long-term debt outstanding at March 31, 1987 is 10.20% (1986—10.32%).

For the purpose of financing capital construction expenditures and refunding debt during the year, the Corporation received advances totalling \$334.5 million from the Province of Manitoba as follows:

- \$206.9 million due July 17, 2016 with interest at 9.23%
- \$27.6 million due November 21, 1994 with interest at 9.37%
- \$100.0 million due March 31, 1995 with interest at 8.00%

Long-Term Debt:	1987	1986
(thousands of dollars)		
Total long-term debt outstanding—		
The Manitoba Hydro-Electric Board Bonds	\$1 194 080	\$1 247 475
Advances from the Province of Manitoba represented by debenture debt of the Province	1 869 728	1 557 097
Advances from the Province of Manitoba under a loan agreement between the Province and the Government of Canada	116 547	148 992
	<u>3 180 355</u>	<u>2 953 564</u>
Less: Sinking fund on deposit with the Minister of Finance	375 101	351 204
	<u>2 805 254</u>	<u>2 602 360</u>
Less: Long-term debt maturing within one year—		
Maturities net of sinking fund plus annual sinking fund installment	153 126	78 574
	<u>\$2 652 128</u>	<u>\$2 523 786</u>

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Debt Maturities:

Year Ending March 31	Cash Requirements			Total
	Principal Amount of Maturities	Maturities Net of Sinking Fund	Annual Sinking Fund Installments	
	(thousands of dollars)			
1988	\$ 145 465	\$ 107 717	\$ 45 409	\$ 153 126
1989	201 708	179 305	44 030	223 335
1990	180 477	155 563	42 878	198 441
1991	300 299	270 858	41 811	312 669
1992	197 037	158 668	39 313	197 981
	1 024 986	872 111	213 441	1 085 552
1993-1997	990 979	769 666	146 621	916 287
1998-2002	388 614	254 688	111 162	365 850
2003-2007	550 075	244 083	80 805	324 888
2008-2012	18 821	7 771	25 328	33 099
2013-2017	206 880	90 851	29 771	120 622
	\$3 180 355	\$2 239 170	\$607 128	\$2 846 298

NOTE 6—DEFERRED CREDITS

	1987	1986
	(thousands of dollars)	
Non-refundable capital contributions	\$54 969	\$47 387
Unamortized discount on purchase of sinking fund investments	15 613	18 633
Unamortized foreign exchange on sinking fund investments	5 199	8 719
Other	631	766
	<u>\$76 412</u>	<u>\$75 505</u>

NOTE 7—RESERVES

The following reserves are maintained by the Corporation:

Contingency and General Reserve

An amount as stipulated by the Manitoba Hydro-Electric Board may be transferred annually to this reserve. The amount transferred for the 1986-87 fiscal year was \$13 448 000 (no transfer was made for the 1985-86 fiscal year).

Rate Stabilization Reserve

The net income after provision for the contingency and general reserve is transferred annually to this reserve.

NOTE 8—COMMITMENTS

a) Lease Commitments

In accordance with a lease agreement entered into during 1966 between the Governments of Canada and Manitoba, direct current transmission facilities were constructed between the Kettle Generating Station and Winnipeg. The agreement provides for repayment by the Corporation of the capital cost with accrued interest at 5.625% over a term of forty-five years in accordance with a repayment schedule requiring substantially smaller payments during the earlier years. The schedule provides for payment of \$17 500 000 for the year ended March 31, 1987 (1986—\$15 000 000) and for annual increases in payments of \$2 500 000 for the years 1988 and 1989. The progressive increases result in a payment in 1989 of \$22 500 000. Payments for the fiscal years 1990 to 2019 will be calculated as the equal annual payment required to amortize the outstanding balance over thirty years at 5.625%. The unpaid balance of principal plus accrued interest for transmission facilities amounted to approximately \$369 479 000 as at March 31, 1987 (1986—\$366 304 000).

The Corporation's policy is to charge the lease payments to operations in the period in which they become payable. This policy is consistent with the intent of the lease agreement of providing economic relief to ratepayers during the early years of the Nelson River development. This is evident when compared with a calculation of a charge in accordance with the C.I.C.A. recommendation on accounting for capital leases entered into subsequent to January 1, 1979, which indicates that an additional amount of approximately \$8.0 million would have been charged to operations for the year and an additional net asset amount of approximately \$178.2 million would have been recorded relating to the transmission facilities.

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b) Mitigation — Northern Flood Agreement

Manitoba Hydro is party to an agreement with the Government of Canada, the Province of Manitoba and the Northern Flood Committee Inc., which includes compensation and mitigation for the impact of the Churchill River Diversion and Lake Winnipeg Regulation projects. The total spent on compensation and mitigation during the year was \$1.3 million (1986 — \$2.4 million). The total amount paid to date under the Northern Flood Agreement is \$26.5 million as at March 31, 1987. A total of 132 claims have been filed to date with the Arbitrator involving Manitoba Hydro with 68 claims having been settled. Of the 64 claims outstanding, Manitoba Hydro is not able to precisely determine the potential contingent liability but has estimated it to be in excess of \$30.0 million.

As a demonstration of good faith, Manitoba Hydro advanced \$5.0 million to the Northern Flood Committee Inc. to provide funds to the Indian Bands for their use in housing upgrading. This advance, adjusted for the time value of the advance will reduce the amounts payable emanating from the future adjudication of claims.

c) Construction Commitments

Construction on Limestone Generating Station has been committed to provide for first power in 1990-91. The current forecasted cost of the new generating station is \$1 731 million; at March 31, 1987 costs of \$430.9 million had been incurred.

Other outstanding commitments, principally for construction, were approximately \$43 879 000 (1986 — \$60 586 000).

NOTE 9 — COMPARATIVE FIGURES

Where appropriate, comparative figures for 1986 were reclassified in order to conform to the presentation adopted in 1987.

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FINANCIAL STATISTICS

(in thousands of dollars)

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
STATEMENT OF OPERATIONS										
Revenues										
Residential and Farm	190 130	185 567	168 977	146 054	126 684	123 629	115 364	117 161	105 999	86 902
Power, General Service and Misc.	223 726	214 386	198 692	174 707	151 203	154 579	135 064	132 762	118 795	100 720
Winnipeg Hydro										
(Cost Sharing Agreement)	35 415	32 984	29 826	29 398	27 180	33 146	26 682	25 435	18 865	17 910
Extraprovincial	113 489	112 846	103 151	105 654	105 411	72 384	81 965	95 965	82 055	34 634
Other Revenue	6 928	6 820	5 768	5 684	4 217	3 865	2 768	3 022	2 817	2 829
	569 688	552 603	506 414	461 497	414 695	387 603	361 843	374 345	328 531	242 995
Expenses										
Operating and Administrative	187 941	173 866	157 753	148 975	138 503	120 071	105 442	88 981	77 588	69 739
Depreciation	77 683	74 470	69 339	66 294	61 718	60 127	57 793	53 313	43 963	35 610
Water Rentals	37 582	17 850	11 287	11 760	11 575	9 342	8 956	4 765	3 937	2 646
Fuel and Power Purchased	10 460	9 399	14 392	9 289	8 192	16 711	9 973	5 592	3 985	22 695
Finance Expense	242 574	246 753	242 509	228 853	213 836	205 544	195 947	176 091	153 395	113 568
	556 240	522 338	495 280	465 171	433 824	411 795	378 111	328 742	282 868	244 258
Net Income Transferred to (from) Reserves	13 448	30 265	11 134	(3 674)	(19 129)	(24 192)	(16 268)	45 603	45 663	(1 263)
BALANCE SHEET										
Assets										
Plant in Service	3 395 825	3 314 378	3 173 197	3 030 182	2 945 435	2 891 325	2 808 938	2 659 268	2 376 777	1 814 239
Less: Accumulated Depreciation	854 833	783 776	713 619	647 001	584 534	524 720	469 158	413 720	363 462	321 187
Construction in Progress	473 655	326 005	270 947	301 641	272 013	202 544	188 792	244 175	399 277	765 897
Current and Other Assets	225 481	272 648	193 058	249 270	251 561	156 665	121 269	131 528	179 590	143 005
	3 240 128	3 129 255	2 923 583	2 934 092	2 884 475	2 725 814	2 649 841	2 621 251	2 592 182	2 401 954
Liabilities and Reserves										
Long-Term Debt — net	2 652 128	2 523 786	2 213 115	2 404 657	2 367 561	2 297 887	2 230 803	2 221 647	2 298 726	2 167 919
Current and Other	450 693	481 610	616 874	451 082	434 887	326 771	293 690	257 988	197 443	183 685
Reserves	137 307	123 859	93 594	78 353	82 027	101 156	125 348	141 616	96 013	50 350
	3 240 128	3 129 255	2 923 583	2 934 092	2 884 475	2 725 814	2 649 841	2 621 251	2 592 182	2 401 954
STATEMENT OF CHANGES IN CASH RESOURCES										
Operating Activities										
Cash from Operations	96 066	107 838	83 839	65 124	48 095	41 844	47 251	104 442	93 993	36 852
Non-Cash Working Capital Increase (Decrease)	15 623	(5 099)	(15 013)	10 384	7 819	(5 562)	1 017	(15 011)	(14 797)	5 000
From Operating Activities	111 689	102 739	68 826	75 508	55 914	36 282	48 268	89 431	79 196	41 852
Financing Activities										
Retirement of Long-Term Debt — net	(92 772)	(170 671)	(84 091)	(175 542)	(75 383)	(67 266)	(51 425)	(30 717)	(34 369)	(7 255)
Proceeds from Long-Term Debt — net	330 713	380 014	61 002	198 234	273 963	175 393	109 560	1 961	189 038	229 814
Sinking Fund Payment	(42 055)	(39 698)	(38 755)	(37 636)	(35 514)	(33 640)	(32 055)	(31 463)	(29 360)	(26 291)
Other	(91 044)	(19 539)	29 868	37 944	2 563	31 782	10 520	56 689	8 070	8 641
From (To) Financing Activities	104 842	150 106	(31 976)	23 000	165 629	106 269	36 600	(3 530)	133 379	204 909
Investing Activities										
Additions to Electric Utility Plant	(237 800)	(202 039)	(122 640)	(152 283)	(128 693)	(103 954)	(99 634)	(132 703)	(199 625)	(323 918)
Other	57	12	14	3 320	22	12	965	374	158	593
To Investing Activities	(237 743)	(202 027)	(122 626)	(148 963)	(128 671)	(103 942)	(98 669)	(132 329)	(199 467)	(323 325)
(DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(21 212)	50 818	(85 776)	(50 455)	92 872	38 609	(13 801)	(46 428)	13 108	(76 564)

The Manitoba Hydro-Electric Board

OPERATING STATISTICS

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
INTEGRATED SYSTEM —										
MANITOBA HYDRO AND WINNIPEG HYDRO										
Installed Winter Capability (000 kW) .	4 089	4 091	4 091	4 091	4 091	4 091	4 091	4 091	3 678	3 202
Manitoba Firm Peak Demand (000 kW)* .	3 011	2 941	2 952	2 889	2 543	2 735	2 575	2 519	2 419	2 445
Percentage Change	+ 2.4	-0.4	+ 2.2	+ 13.6	-7.0	+ 6.2	+ 2.2	+ 4.1	-1.1	+ 3.8
Energy Supplied (000 000 kW.h)	22 957	22 226	20 261	20 967	20 538	17 372	17 975	19 690	17 600	12 669
Manitoba Hydro Generation	1 108	1 085	1 066	1 042	1 158	813	848	1 111	1 153	766
Winnipeg Hydro Generation										
Energy Purchased										
Hudson Bay Mining & Smelting .	0	0	0	0	0	0	38	28	4	93
Ontario	0	0	0	0	0	0	0	0	0	21
Saskatchewan	115	93	61	64	71	179	15	1	1	5
United States	0	17	20	7	43	297	203	0	4	721
Total Generated and Purchased . .	24 180	23 421	21 408	22 080	21 810	18 661	19 079	20 830	18 762	14 275
Firm Energy Supplied for Manitoba Integrated System (000 000 kW.h)*	15 498	15 366	14 993	14 388	13 260	13 527	12 529	12 797	12 483	11 962
Isolated Systems										
Generated and Purchased (000 000 kW.h)	46	46	47	48	47	46	47	50	53	52
Total Integrated & Isolated Systems (000 000 kW.h)	15 544	15 412	15 040	14 436	13 307	13 573	12 576	12 847	12 536	12 014
Percentage Change	+ 0.9	+ 2.5	+ 4.2	+ 8.5	-2.0	+ 7.9	-2.1	+ 2.5	+ 4.3	+ 1.6
MANITOBA HYDRO SYSTEM										
Energy Sold (000 000 kW.h)										
Residential and Farm	4 749	4 751	4 520	4 205	3 922	3 765	3 536	3 600	3 616	3 387
Power, General Service and Misc. .	6 911	6 677	6 590	6 263	5 726	6 068	5 587	5 585	5 328	5 308
Net Transfer to Winnipeg Hydro	1 273	1 190	1 154	1 143	930	1 245	1 163	977	918	1 191
Extraprovincial										
Ontario	817	917	795	1 153	850	1 099	1 616	1 787	1 439	773
Saskatchewan	10	222	233	260	231	342	968	1 378	530	364
United States	7 004	6 153	4 739	5 409	6 533	3 150	3 299	3 966	3 718	1 004
Number of Customers										
Residential and Farm	313 499	305 700	299 611	293 620	288 076	285 175	281 479	279 080	273 779	262 877
Power, General Service and Misc. .	41 315	41 019	40 547	39 965	39 766	39 804	39 629	39 129	38 840	38 496
Peak Number of Employees	4 142	3 853	3 805	3 778	3 859	3 850	3 899	4 164	4 411	4 826

* Corrected by System Losses applicable to Extraprovincial Sales



The Province of Manitoba
Power Sources and High Voltage Transmission
as at March 31, 1987

